The CHEMIST

APRIL, 1938 VOLUME XV, NO. 4

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MEDAL AWARD

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THE STATUS OF WOMEN CHEMISTS

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Come to the Annual Meeting, Atlantic City, New Jersey, on May 14, 1938.

Program on page 172.

WHAT IS THE LIFE EXPECTANCY OF A TEST TUBE?

Just as insurance actuaries can tell you the life expectancy of any average group of men, so the heads of large laboratories and the purchasing departments of many schools, hospitals and industries have a table of mortality for their technical glassware. They can estimate the life of a gross of test tubes almost to the month.

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The CHEMIST

Publication of

THE AMERICAN INSTITUTE OF CHEMISTS, INC.

V. F. KIMBALL, *Editor*, 233 Broadway, New York City

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THE AMERICAN INSTITUTE OF CHEMISTS
HOWARD S. NEIMAN, *Secretary*
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Program

THE AMERICAN INSTITUTE OF CHEMISTS

Annual Meeting, May 14, 1938

Hotel Claridge, Atlantic City, N. J.

Morning—Registration.

12:30 P. M.—Luncheon Meeting of National Council.

2:00 P. M.—Addresses:

DR. HOWARD W. POST, F.A.I.C., Assistant Professor of Chemistry, University of Buffalo, *The Bending of Twigs.*

DR. GILBERT E. SEIL, F.A.I.C., Technical Director, E. J. Lavino and Company, Norristown, Penna., *The Chemist in Industry.*

DR. FOSTER D. SNELL, F.A.I.C., President, Foster D. Snell, Inc., Brooklyn, N. Y., *The Consulting Chemist, Who, What, and Why?*

4:00 P. M.—Annual Business Meeting.

7:00 P. M.—Annual Banquet.

DR. MAXIMILIAN TOCH, *President,* The American Institute of Chemists, presiding.

Presentation of the Medal of
THE AMERICAN INSTITUTE OF CHEMISTS
to
DR. FREDERICK G. COTTRELL
Consulting Chemist, Metallurgist, and Inventor

Speakers

MR. WALTER A. SCHMIDT, *President,* Western Precipitation Corporation, Los Angeles, Calif., *The Medalist.*

DR. MAXIMILIAN TOCH, *Presentation of Medal.*

DR. FREDERICK G. COTTRELL, *Acceptance.*

Please refer to the inside back cover of this issue of the Chemist for additional information.

Medal Award - 1938
to
FREDERICK G. COTTRELL

The medal of THE AMERICAN INSTITUTE OF CHEMISTS, presented annually for outstanding service to the science of chemistry or the profession of chemist in America, is awarded this year to Dr. Frederick G. Cottrell, consulting chemist, metallurgist, and inventor, for his outstanding scientific achievements and for his service to the profession through the support of research.

During the World War, Dr. Cottrell was one of the principal directors of the research which resulted in perfecting a process to recover helium from oil well gases at a cost of about one cent per cubic foot. Previously helium gas cost $1,700 per cubic foot. He is the inventor of the Cottrell precipitator, which by electrostatic attraction cleans gases of fine particles of dust. He was active in the development of the fixation of nitrogen during and after the War. He has given the profits from many of his patents to further scientific research.

The medal will be presented to Dr. Cottrell at the annual dinner of the INSTITUTE, to be held in Atlantic City, May fourteenth.

CHEMISTRY HALL LIBRARY

The Status of Women Chemists

By **Florence E. Wall, F.A.I.C.**

Address delivered before the New York Chapter, at The Chemists' Club, February 18, 1938.

FOR several weeks, I have been assembling facts on *The Status of Women Chemists*, and the safest thing to say at the outset is that the status of women chemists is uncertain, or at least undetermined at present.

It has been generally conceded that women and girls stepped nobly into the breach during the World War, to take the places of the men, and to fill numberless new places created by the rapid expansion of the new American chemical industries. What became of them all? Who knows? Many dropped out or were forced out during the post-war industrial depression. Many stayed on somehow, and when we add to these the numbers of girl majors in chemistry who are graduated each year from our universities and colleges, it seems obvious that chemistry ranks among the popular fields in which women hope to make careers for themselves.

Chemistry is now a recognized and respected branch of study in most women's colleges; yet, while the importance of the *science* itself is stressed, too little has been done by way of guidance toward a career and honest evaluation of the vocational opportunities for women in the *profession* of chemistry.

No one knows how many women chemists there are in the country, principally because the women chemists themselves frequently lack professional consciousness—not as *women* but as *chemists*. No complete survey has been made since 1922 when a study was made and published under the auspices of the now defunct Bureau of Vocational Information.[1] At that time, the number of women engaged in chemical work was estimated at four per cent. A later study on occupations and earnings of women chemists[2] aimed to show what correlation existed, if any, between the degrees held and the respective returns from various types of employment. Other publications have

[1] Women in Chemistry: A Study of Professional Opportunities. *Studies in Occupations*, No. 4, The Bureau of Vocational Information, New York, 1922.

[2] Occupations and Earnings of Women in Chemistry, by Helen L. Wikoff. *Industrial and Engineering Chemistry*, Vol. 25, 467. April 1933.

appeared from time to time; but certainly no comprehensive official study has been made since 1922.

The latest directory of the American Chemical Society lists less than five hundred identified women chemists. That number includes a few, but not all, of the women that hide behind their initials. The Society keeps no record of statistical information on this point, because it makes no distinction among the members.

Seeking an analogy, I recently inquired for some official figure on the number of women physicians; only to be told that "we make no distinction between the males and the females". Certainly not! If they are in, they are in, and that is all there is to it. Regardless of what the physician happens to be doing, teaching, writing or whatever, he or she never loses that professional consciousness of being a physician. He never forgets it nor lets anyone else forget it.

Not so the chemists. Frequently, at scientific meetings, I have asked a visitor in women's clothing if she is a chemist, only to receive the doubtful answer, "Well, I teach". A conspicuous example of this lack of professional consciousness in women chemists is to be found in *American Women*, a biennial "Official Who's Who" publication. Volume II lists fifty-eight chemists in the classified section (Volume I gave nineteen), with a surprising number of prominent names missing. A study of the text proper reveals a great many of these, but they are self-designated as "researcher", "scientist", an occasional "writer" and a whole flock of "professors."

This observation evokes a problem in psychology. This state of affairs must be because the term "chemist" is often too difficult to explain. Dr. Harold once told us here, among other pungent remarks, that "chemists have the group consciousness of a pack of balloons".[3] Of course, THE AMERICAN INSTITUTE OF CHEMISTS was organized to do something about that very thing. As Dr. Breithut's slogan puts it, "Other chemical societies aim to make a chemist out of a human being; THE AMERICAN INSTITUTE OF CHEMISTS aims to make a human being out of a chemist". Whether the licensing, registration, and placarding of qualified chemists will bring this about, is beyond the scope of this paper.

Would that we could inculcate more of the professional spirit of the physicians into those educated and trained for chemistry, so that we all should be equally proud to designate ourselves as "chemists that

[3] Various Phases of Licensing, by Joseph F. X. Harold, F.A.I.C., THE CHEMIST, Vol. VI, No. 7; May 1929.

happen to be teaching", or writing, or editing, or whatever else may be currently our occupation.[4]

Lest it be suspected that this is to be a tirade of feminism, be assured that most of us are utterly unconscious of any professional distinction between men and women chemists as such. Under existing conditions, however, certain economic, educational, and sociological factors react differently on the men and on the women, and these cannot be ignored. Let us therefore consider the status of women chemists in terms of, not the women that happen to be chemists, but those chemists that happen to be women.

The plan for this paper was made to order in the program of the symposium on *Women's Place in Chemistry*, a feature of the educational program during the Exposition of Chemical Industries in 1935, under the general direction of Professor W. T. Read. The papers were not published at that time. Wherever it was possible, the original one was returned to the speaker to be brought up to date, and it is to these generous contributors that I gladly extend my appreciation and thanks for most of what I can tell you now.

This program, of which it was my privilege to be the chairman, was divided into three parts, devoted respectively to: I, *Chemistry in the Schools;* II, *Expression for Chemistry;* and III, *New Trends in Chemical Industry*. The various contributions (freely interlarded with current editorial comment), were essentially as follows:

I. Chemistry in the Schools

a) A Basic Chemical Education; discussed by M. Helene Lewinsohn, Ph.D., of Jamaica, (N. Y.) High School; formerly at Adelphi College.

> No paper was available, but the program outlined followed the curriculum proposed by the Committee on Professional Education of THE AMERICAN INSTITUTE OF CHEMISTS, as reported by Dr. M. L. Crossley, F.A.I.C., Chairman.[5] The speaker endorsed the need of broader educational background for the chemist of today, emphasizing the need for related sciences, economics, philosophy, mathematics, and languages, including English. Respect for chemistry as a profession should be laid in the high schools; and at all levels, students of chemistry should be encouraged to adopt a social attitude, look forward to active participation in the work of the established scientific and technical organizations, and keep themselves always alert and educable.

[4] What IS a Professional Chemist?, by Florence E. Wall, F.A.I.C., THE CHEMIST, Vol. XI, No. 8; Nov.-Dec. 1934.

[5] THE CHEMIST, Vol. VIII, 327-334; June 1931.

Girl students of chemistry are now being advised to seek their careers in "the fields that are appropriate to women's interests"—foods, nutrition, textiles, child hygiene, cosmetics, and it has always seemed incongruous that so little work of this kind can be found in the "straight chemistry" department in many of our colleges. Dean Gildersleeve of Barnard College has said that she believes girls should not be spared real work in whatever they elect to study; that "chemistry, for instance, should be real chemistry, not some diluted form of it". Even some of the most "liberal art-y" girls have a genuine liking for chemistry, and even major in it. Suppose they intend not to work at it, but to enjoy the practical applications of it in their future homes. Does it not seem odd that for courses in chemistry, definitely associated with home-making, they usually have to go to a *Teachers'* College? And on the other hand, is it not too bad that so many "straight chemistry" majors simply follow the usual routine of required courses and electives, with no thought of the home they may one day have, in which a fair knowledge of both chemistry and physics now seems to be not only a clever asset, but also practically essential for success? This seems like a problem in chemico-educational sociology. Perhaps our guidance counselors, and the heads of chemistry departments should give some thought to curricula for girl chemistry majors which will be more practical, yet just as respectably scientific as the classical formula which is followed almost universally today.

b) *The Outlook for Teachers of Chemistry* plunges us immediately into the burning question of what to do with a chemical education after one gets it. According to Charles W. Mulford, Director of the Schermerhorn Teachers' Agency, New York:

> The demand for women teachers of chemistry is about the same as it has been for the last twenty years. One seldom obtains a position for just chemistry without long experience in the whole science field. This field includes chemistry, physics, biology and general science.
>
> Some colleges say that students pursuing more than a beginning course in chemistry may be divided in two groups: First, students that major in chemistry for the purpose of earning their living in that field. Such students are strongly recommended to lay a solid foundation in mathematics, physics, German and French. Second, students that major in chemistry for the purpose of widening their mental horizon.
>
> Pre-medical students cannot gain admission to medical school with less than four years of undergraduate work. Such students usually major in general chemistry and a large part of this work is in general science.

There also are courses in foods and nutrition which are credited toward a major in the Department of Chemistry.

It is essential for one preparing for teaching in New York State to have eighteen semester hours credit in biological sciences and eighteen semester hours in the physical sciences.

The subject which might be most useful with science teaching, (which includes chemistry, physics, biology and general science), should be mathematics. The smaller schools will take inexperienced teachers for the teaching of mathematics and science; the mathematics usually include algebra, plane and solid geometry.

Personal qualities necessary, as stated by the State Education Department, are that a candidate for the initial teaching certificate, in addition to other qualifications prescribed, should possess good moral character, good health, and general fitness for teaching. The key to successful teaching is the ability to impart one's knowledge, to educate by bringing out in the student the best there is in him. Such a person is blessed with the gift of good teaching.

Unfortunately the depression has brought about many requirements in the field of extra-curricular activity which do not pertain directly to the subject matter to be taught: that is, the coaching of all athletic sports, dramatics, and music. If it is in athletics, a man is required because he is able to coach football or basket ball. Our experience, covering a period of some thirty years, convinces us that the field of science in the public schools should be entered by men instead of women.

There is a field for women in chemistry work in home economics, where it is essential that they have inorganic chemistry and qualitative analysis of foods. Enough organic chemistry is required to enable the student to work with problems involving food, proteins, carbohydrates, fats, etc.

The requirements for higher degrees are constantly increasing and one with less than a Master's degree has difficulty in securing employment in the teaching field.

The better placement bureaus throughout the country do not pretend to peddle their wares any more than high class professional men would shout their superiority from the housetops. They do wish, however, to have in their possession the complete records of a few outstanding persons in each field so that when the opportunity comes, as it usually does, they will have somebody ready in waiting for this opportunity.

Anyone preparing for the teaching profession must give very careful attention to the educational requirements in any given state. Information of this kind may be obtained by writing to the Commissioner of Education in care of the State Education Department, at the Capitol of the State in question.

Each year at about this time, letters begin to come in from students of chemistry who have discovered an article[6] of mine based on

[6] Vocations in Chemistry, by Florence E. Wall, F.A.I.C., *Journal of Chemical Education*, Vol. 11, p. 96; Feb. 1934.

my own early experiences in guidance. From this, people gather that I can find jobs for aspiring chemists. Although I receive many calls in any year for talks to students in both high schools and colleges, chemistry clubs, *et al.*, I never was, nor am I now, anything but a sympathetic amateur in vocational guidance. I was forced almost unwillingly into this avocation in those first dark days of the depression (1930-1932) by calls from persons who had found my name on the masthead of THE CHEMIST, and thought that I should either have a job to give them or know where to find one.

In they came, men and women of various ages, many of them panic-stricken and inarticulate. After listening to the whole story, my first question was always "That is very sad, but suppose there may never be any more chemistry for you to work at; *what else can you do?*" Many of those cases were simply pathetic! Some of them seemed to have absolutely no resources within themselves, and no knowledge of anything but routine work, frequently out of date, at that. Others did have possibilities, and could be steered into other lines of work where their knowledge of chemistry could form good background even if it were not directly usable.

The trend in guidance in chemistry nowadays should be away from teaching and from straight routine laboratory work into the newer industries or new developments in the older established ones. It was all very fine during the war, when we could, if required, wield wrenches, clamber over stills, and perform other official duties in a chemical plant "just as well as a man"; but the clever she-chemist makes no boasts of that nature now, and keeps away from plant work. As indicated in the following sections, she applies her knowledge of chemistry in those fields vaguely described as "more appropriately women's work".

II. Expression for Chemistry

a) Scientific Editorial Work: by Louise Kelley, Ph.D., Professor of Chemistry, Goucher College; Assistant Editor, *Chemical Reviews*.

> The duties of the Assistant Editor of *Chemical Reviews* have to do chiefly with the handling of the articles from the time when they are accepted for publication until they appear in print. The first step is the preparation of the manuscript for the printer. The size of the type to be used throughout must be indicated. Any tabular matter requires special attention to details, such as the size of type to be used and the general make-up of the tables. Careful study of the latter often saves valuable space. One must be sure that the necessary legends are provided for all the drawings that may accompany the manuscript and that the extent to which the drawings can be reduced is indicated, in order that

the cuts may not occupy more space than is really essential. Occasionally an author will include in his paper a rather complicated formula or a diagram containing lines which cannot be duplicated in type, owing to the rigidity of the latter. After a few experiences with such material, one learns the limitations of type and, realizing that certain material included in the manuscript cannot be handled in that way, modifies it so that it can be set or prepares a copy from which a line engraving may be made.

In the editing of the main body of the manuscript one must pay attention to such details as spelling, punctuation, and sentence structure; equally important is the requisite that the material be presented clearly. Various books are of use as reference, such as a handbook of English composition and an up-to-date dictionary.

The amount of time which would be required for verifying the individual references in the bibliographies makes this impractical, but errors are sometimes located by comparing the volume number of the journal with the year of publication and following up any discrepancy noted. Although most authors use the abbreviations for names of periodicals, as advocated by *Chemical Abstracts*, there are occasional deviations. These must be detected and corrected in order that the references may be uniform. On numerous occasions it has been necessary to refer to a previously published article, in order to settle a doubtful point, such as a symbol used in a mathematical expression. At such times familiarity with the literature of chemistry and with foreign languages is advantageous.

After the manuscript has been delivered to the printer, it can be forgotten for a time. At the end of three or four weeks the proofs begin to come in from the authors. The next step is the reading of these proofs, for the purpose of detecting any errors that have been overlooked by the authors in their reading of the proofs. After the proofs are returned to the printer the responsibility of the assistant editor is usually terminated.

There is scarcely any portion of one's experience along chemical lines that is not of assistance in connection with editorial work. All the courses that one has ever had and all the reading that one has ever done contribute in some measure to one's equipment for it. The more knowledge one has of the different phases of chemical research, the more likely one is to be able to detect either a failure to express an idea clearly or an actual error in statement. A thorough training in English grammar and composition is advisable. A reading knowledge of French and German is helpful, especially when one must consult chemical journals published in those languages. So also is the ability to use a typewriter, without which one would often be seriously handicapped in the efficient performance of the various editorial activities. Occasions arise when even the ability to do lettering on line drawings saves time and expense.

There are certain qualifications which are desirable in a person doing editorial work, since they help to maintain one's enthusiasm even after several hours of proof-reading. Among these qualifications might be

mentioned patience, even with very minute details, a desire for as great accuracy as circumstances permit, a sincere interest, and a conviction that the work is worth doing to the best of one's ability.

One of the most delightful aspects of the work lies in the contacts made with chemists all over the world. These contacts are slight, and in most cases are probably soon forgotten by the contributor to the journal, but they increase the pleasure to be derived from the work.

In the time available it was not possible to make a survey of the possibilities for employment in this field. No doubt the openings are limited and unless one were so fortunate as to have an editorial position present itself, one would have to associate one's self with an establishment printing periodicals of a scientific nature and make the most of the opportunities offered. From observation of some of the problems with which a printer of scientific literature is often faced, it would appear that a person with the proper background might be very useful in such an organization.

A good point to add here is the need for a consistent editorial viewpoint. In my own experience as Editor of THE CHEMIST, for instance, I found it rather difficult at times to impress on a contributor that THE CHEMIST is primarily interested in the professional aspects of chemistry, and the human interest side of the chemist's work. Occasionally an article returned for revision to this point of view would come back in the desired form; but often the contributor would be offended and the paper would not come back at all. On more than one occasion, to keep both the paper and the peace, an entire article was practically rewritten to shift the editorial viewpoint. As a fictitious example, a paper on "The Chemistry of Building Materials" might have to be translated into "The Chemist's Contribution to the Building Industry".

b) Technical Publicity and Advertising: by L. W. Hutchins, Vice-president, Sheldon, Morse, Hutchins, and Easton, Inc.; formerly Director of The American Institute of the City of New York.

Technical-publicity-and-advertising is not a simple, unified thing that any publicity person can do. It is really a group of things requiring several different abilities that are rarely found in one person. And we shall assume that women can do them *as well* as men.

A. ADVERTISING (Leaving out campaign planning and market studies).

Let us assume that the person for all these jobs has a good general knowledge of the sciences, broad but not specialized. Also that she has good knowledge of English, a firm grounding in history, and economics, and of course, a "feel" for printers' ink.

The technical copy writer needs to know industries and the types of people in them, for copy writing is really the writing of sales talks, addressed to particular groups, from research men to shop foremen;

from company presidents to purchasing agents. In short, a copy writer should know his readers, understand his product and have something resembling a gift of expression.

B. PUBLICITY.

This is an entirely different job from the writing of advertising copy. A publicity writer must be able to turn out news stories and feature stories readily. But this does not mean that any reporter or magazine feature writer is a good publicity writer. It is not enough that the publicity writer turn out a good readable story, he must also get across his message. At times it becomes little short of an art.

C. ADVERTISING LAYOUTS, ART AND TYPOGRAPHY.

Obviously this work requires training in art. It also requires a knowledge of typography and reproductive processes, such as offset, photo-engraving, etc. It may seem that this job is not for the woman chemist — but that depends on whether there are any chemists who are also artists. Let us hope so; both art and chemistry, to say nothing of advertising, might profit.

D. ADVERTISING PRODUCTION.

I was tempted to combine this work with advertising layout work. In basic knowledge, they overlap a great deal. But in type of persons required for them, there is a big gap.

Advertising production requires a high degree of dependability, accuracy, system. Unless a person has these qualities fairly well developed, others in the world will be happier if she stays out of production.

E. TECHNICAL AND GENERAL EDITING.

This is the person one prays for; the person who sees everything, who is constructively critical of every fact, every word in sentence construction; the person who catches typographical mistakes in headlines and senses omissions. Naturally this person, when found, would know chemistry and essentially everything else.

F. PUBLICITY CONTACT.

This person "spreads the gospel" in the right places, deals with editors, reporters, special and free lance writers, and sets up situations which will or may result in publicity of the desired kind.

Aside from the obvious requirements for such work, pleasing personality, good appearance, etc., the person, to be successful in this work, must have the ability to adapt happenings to his needs, and persistence. Also she must know who the "right people" are, and not get names and dates and faces mixed up too often.

G. PUBLICITY INFORMATION BUREAU.

There are probably very few of these jobs, because very few persons, even publicists, appreciate the value of an Information Bureau. This is a service to editors and others, supplying on request almost any information in the field covered. In three to five years such a bureau will return big dividends in publicity. As to the person to fill it? Just that rare

ability to answer any question within an hour or a day, and make a friend in doing it.

There are two or three important generalities. It is important to keep balanced; not to let oneself become cracked, or even too interested in one thing. Clock-watching just doesn't go in this field. The only thing that counts is results.

Stenography is a good way into agency positions of the kinds mentioned.

"Honesty is the best policy" should apply to advertising and publicity; untruthful advertising, even exaggeration, has done countless harm. Usually the truth will sell.

Many of the advertising agencies which feature scientific and technical accounts maintain research departments where chemists with the right qualifications should be able to make places for themselves. The trouble with much of the scientific and technical advertising to date is that usually the person with the technical knowledge does not know how to write good advertising copy; and vice versa. The technical reports on which the advertising of scientific or pseudo-scientific copy is based suffers because the art layout can accommodate only "eighty-seven words of stuff", and the copy expert does not know just which eighty-seven words to use.

c) *Technical Secretarial Work*, while it was not specifically discussed in our symposium, must receive honorable mention here because it is becoming increasingly important as an entering wedge into many good positions. Executives and administrators in many branches of business and industry frequently require the services of a good secretary with scientific or technical knowledge; consultants, patent attorneys, and others will also employ a well-trained woman assistant when a man as assistant plus a garden-variety of girl stenographer might be out of the question.

The possibilities of this type of work were ably discussed by Lois W. Woodford, F.A.I.C.,[7] during a career conference under the auspices of the Institute of Women's Professional Relations.

Openings for the chemist with a flair for writing are often available with scientists and others who need collaborators, technical editors, or "ghost-writers" for their own literary work. But the person that attempts any work of this kind must have an excellent knowledge of English—grammar, spelling, and various forms of composition, especially exposition.

[7] Proceedings of the General Science Round Table, Florence E. Wall, Chairman, Career Conference of Institute of Women's Professional Relations, Hotel Astor, New York, March 1935, obtainable from headquarters of Institute, Connecticut College, New London, Conn.

III. New Trends in Chemical Industry

a) *Metallurgy and Gemology*: by Calm M. Hoke, F.A.I.C., Consulting Chemist, Jewelers' Technical Advice, New York.

> No paper was available, but a discussion similar in scope was published in the *Proceedings* of the same Career Conference.[7] The speaker brought out new and interesting possibilities in "metal book-keeping", metallography, and applications of scientific and technical knowledge of precious metals, precious and semi-precious stones, in the jewelry trade, electroplating, standardizing of colors, and optics may attract the chemist with an interest in metallurgy, engineering and physical chemistry, instead of the routine jobs formerly available in many analytical laboratories.

One case within THE AMERICAN INSTITUTE OF CHEMISTS deserves mention: a young member, with an established reputation in metallurgy, was regretfully but irrevocably dropped by her employer during the depression. After a period of hopeless searching for similar work, she made a deliberate "about-face", went over to bacteriology, and now seems to be building just as good a reputation in this branch of chemistry.

Comment was made a while back about undergraduate curricula for girls interested in chemistry. Fortunately, there does seem now to be a better understanding of this situation, but too many colleges still allow their girls to think that the study of chemistry leads only to medicine. As a result, the agencies are swarming with benighted girls, seeking jobs as laboratory technicians. A moratorium should be declared on this kind of work, which frequently demands a collateral knowledge of secretarial work and pays relatively little.

b) *Hospital and Public Health Work*: by Patricia Edgerly, Director of The New York Medical Exchange.

> I am constantly approached by college graduates who have a chemistry major, and asked to secure for them positions in the medical field. This is absolutely impossible unless they have special training in medical technology including bacteriology, haematology, serology, histology, and so forth. I do not even take their applications any more with just a chemistry major. I wish the colleges would discourage them from seeking opportunities in the medical field. We now have on file the applications of approximately six hundred and fifty laboratory technicians, both men and women, located all over the country. We find that we are getting many requests for combination positions, such as laboratory and x-ray technicians; laboratory technician with stenography, x-ray technician with stenography. Just recently we had a very good opening for a bacteriologist who was particularly trained in tissue culture, but found very few women who are qualified in this particular field. Today we received

a call for a bio-chemist and x-ray technician, to take charge of the blood chemistry laboratory in a hospital. This is a very difficult combination to find.

I would like to go on record also as desiring a moratorium to be declared on college girls who have "taken some courses" in chemistry and then feel that they can go into a hospital laboratory and take charge. We have too many applicants of that calibre. There are good positions in the laboratory field but they call for good training in laboratory technique.

I have found that pharmaceutical companies that call me always insist on men, therefore I feel that the field is very much closed to women. I can use men with a pharmaceutical and chemical background with large drug companies but I have never been able to place a woman in this field except as a stenographer.

The field of public health is a little different. The only contact I have with public health is through the nursing division. I believe the opportunities are limitless. Our nation has become very public-health-minded and large funds have been set aside for promotional work along this line. A good nurse with a college background is at a premium. She can practically pick and choose her work and her salary.

One thing I should like to stress particularly is that positions in these various fields require personality as well as training. So often chemists think that they can be mossbacked and unattractive physically and personally. This is not at all so. They very often must act as the representative of the firm to the outside world and must therefore be as attractive as possible. According to statistics quoted by Mr. Ackerly, Personnel Director of the Stock Exchange, all during the depression only ten percent of the people who were discharged from positions were inadequately trained for their positions. The others were let go because of personality difficulties, insubordination, unkempt and unattractive appearances, laziness, lack of coöperation, etc. These figures I think are astounding. I find too, that employers will change their requirements according to the applicant. Often they are willing to train her in a certain position if she presents the proper frame of mind and attitude toward the job.

c) *Home Economics*: *Textiles*: by Ellen B. McGowan, Ph.D., Professor of Chemistry, Teacher's College, Columbia University, New York:

Textile chemistry offers a wide field, from the enriching of clothing courses by a study of the physical and chemical nature and properties of the textile fibers, and the fabrics that are of everyday importance in personal wear or in the home, up to the type of practical textile chemistry which leads to the perfecting of processes or the invention of new materials such as synthetics, new water-resistant, crease-resistant, or fire-resistant fabrics, etc. In the school or college, textile chemistry may mean practical aids in helping the consumer to judge and to care for materials; it may mean more advanced testing and evaluating

of textiles, dyes, and detergents. In business, many testing laboratories are maintained for the policing of goods sold over the counter, or service laboratories for the public. In research chemistry, as indicated, this study means the developing and perfecting of materials, or contributions to our knowledge of those fibers and materials which we already have.

The courses in chemistry essential for this work depend upon the position desired. For adequate training, the textile chemist needs at least advanced organic, textile, and physical chemistry, and applied qualitative and quantitative analysis. Useful supplementary branches of science also depend upon the position. Microscopy (including the use of the polarizing microscope), mathematics, physics, botany or plant biology, commercial geography, and bacteriology are desirable. Useful correlated subjects are economics, a reading knowledge of German, an understanding of the history of textiles and manufacturing processes, and some related art.

For teaching, a master's degree is generally expected, especially in secondary schools or colleges. A doctor's degree is being stressed considerably nowadays and is really essential if graduate students are to be guided in research. For business, a degree or a certificate from a technical school may be expected rather than a college degree.

Among the personal characteristics demanded for success are intellectual honesty and alertness, neat and competent appearance, more interest in the job than in the hands of the clock, and in short the characteristics which belong to any high grade employee plus, in this case, skill in handling chemicals and equipment, neatness in working and recording a job, ability to work with economy of time and space.

Opportunities are increasing markedly for teachers of clothing who can also handle textile chemistry. The educational departments and the testing laboratories in stores are seeking women with technical training in textile chemistry, with the idea that the woman so trained can instruct the sales forces in the composition and maintenance methods relating to the fabrics sold. Some opportunities are now opening for women to act as assistants to men who are in advisory positions to the trade. There are also opportunities for demonstrators of some article of maintenance in regard to clothing, such as soap. As new products of this sort come on the market, we often find them demonstrated throughout the country, if "outstandingness" and money are behind the product.

The ever-increasing number of agencies so fervently dedicated to protecting the interests of the consumer could also do nicely with a few well trained chemists, preferably those with a sympathetic feminine viewpoint.

Several of the national periodicals catering to women also maintain testing laboratories, not only for textiles, but also for foods, cosmetics, drugs, clothing, and other commodities advertised in their pages. Women

with a sound background in home economics also find positions with manufacturers of refrigerators, gas and electric devices, bread and other foods. Good speakers are employed for "radio classes", open forums, and other public gatherings at which the food prepared is served with a game of bridge, or tea.

It must be remembered, however, that frequently the "pure chemist" occasionally "falls between two stools" in trying to break into work in home economics, because she does not have the other necessary qualifications. On the other hand, many successful home economists could not pass for professional chemists because they have not had sufficient of the work in pure chemistry and supplementary sciences. Success in this field is often a matter of a pleasing personality and ability in promotion.

d) *Cosmetics and Beauty Culture*: by Ralph L. Evans, Ph.D., F.A.I.C., Technical Director, Sales Affiliates, New York.

Beauty Culture is primarily a woman's industry. Most of the customers are women. Consequently, women should sense their own problems much more accurately and sympathetically than men. Some of the most successful companies in beauty culture have been headed by women and developed by women. Even in these companies men are usually employed for the management personnel, as sales managers, advertising managers, controllers, auditors, accountants, and production managers. Nevertheless, it is not always true that all of these positions have been filled by men. Frequently we find a woman advertising manager; less often, a woman sales manager or a woman production manager. Women are found frequently in such positions as production forelady, research chemist, demonstrator, teacher, head of demonstration department, special advisor to sales staff, copywriter, special investigator, and sales supervisor.

It is common practice that the actual operators in beauty shops are women. Women almost monopolize the beauty shops of the country. Here their positions range from shop-owner and manager down through all types of work to the simplest services performed. Finally, women usually occupy the position of beauty editor with periodicals and newspapers, and of beauty consultant to department stores in connection with stylists, buyers, department managers, and so on down to the sales girl behind the counter. Roughly speaking, the same types of opportunities are now open as are open in times of better business, but there are perhaps not quite so many of such opportunities available. Certain it is that women have an advantage over men for most of the opportunities open in this field. This is especially true where direct contact between ultimate consumer and the occupant of a given position is involved. The simple fact is that women can explain women's beauty problems to other women much better than men can, and if women are accurately informed

as to their facts and intelligent in their use of these facts, this advantage should be augmented.

It is my personal feeling that a scientific training is an admirable background for a woman in beauty culture. However, such training, as is received in an ordinary college or university is not by itself sufficient equipment for a woman to enter the field of beauty culture and take up at once a position of responsibility. My recommendation is that any woman with scientific training who wishes to enter the field of beauty culture should, in addition to accumulating the various degrees which schools and colleges have to offer, enroll in one of the better schools of beauty culture and take a course of training — usually about six months in length — which course would teach her the fundamentals that must be known by every successful beauty operator. With the theoretical training of science and the practical background of a course in beauty culture, it is then possible for a woman to advance to whatever position her individual capacity will permit her to undertake.

Possibly because chemical research has contributed so appreciably to the rapid advance of the cosmetic industry, many persons—teachers, students, and lay persons—think that chemistry is the magic key to success in this field. They seem to think, too, that all one needs to know is how to concoct a few messes from predigested recipes. Last year, I begged the members of The Chemistry Teachers' Club to give at least some superficial study to this vast industry so that they could advise students on how to approach it. Many girls, overcome by the glamor of it, have the idea that with a degree in chemistry tucked under their arm, they can walk right into a job as assistant to the director of research in a manufacturing house. Now, when some frankly curious but usually totally ignorant girl (or boy, or man or woman) wants me to take the time to explain the business of cosmetics-and-beautification to them "from scratch", I defer the appointment until after they have read a few of my articles on the subject.[8, 9, 10]

There are many serious problems related to cosmetics and beauty culture, just as worthy of good scientific research as are problems in the fields of foods and drugs, but unfortunately, few schools are equipped to undertake it. This work is indeed preëminently suited to women chemists, but those that choose to engage in it should really believe in it, and at least try to look like good examples of its possibilities.

[8] The Contribution of the Chemist to the Cosmetic Industry; THE CHEMIST, Vol. XII, No. 4, April 1935.

[9] Training in Chemistry for the Cosmetic Industry. *Journal Chemical Education*. Vol. 13, 435, Sept. 1936.

[10] The Contributions of Science to Cosmetology. VI. Chemistry. *The American Hairdresser*, Vol. 60, No. 10.

c) Library Work has long been regarded as a good vocational outlet for women chemists and many women who could well be content with being good librarians actually cherish a secret sorrow, thinking of themselves as "spoiled chemists". That is really too bad because it is being realized more and more that technical and chemical librarians should not "just happen". All work in libraries is becoming professionalized so rapidly, that before long some definite curriculum of education and training will be required of those that wish to engage in it. Few persons can walk in "cold" on a library job nowadays; they must know official systems of indexing and filing, as well as the languages and the abstracting and translating which were once considered sufficient for the entering wedge. As more and more commercial and business houses establish libraries, there are always openings for chemists with the right qualifications. These now form their own large group of "special librarians".

Women have been generally believed to be rather good at bibliographic research; yet at a meeting of this Chapter not so long ago, a speaker remarked:

> "Women, as a rule, do not make good searchers of literature. I believe this is due to the fact that the technical experience of women is not as varied as that of men. Women usually take up only one branch of chemistry or technology and stick to that branch alone. The average man has been in three or four different kinds of work, and therefore, has a more varied background. A literature searcher to be successful is born, not made."

To the last sentence, at least, one can say "Amen!" As for the rest, it is my opinion that success in bibliographic research and foreign languages is not a matter of sex, but rather of intellectual capacity, native ability, and practical experience.

From certain points common to all the fields touched upon in this sketchy survey, it should be obvious that the chemist must be "more than just a chemist". She needs to be resourceful and versatile, because when chemical jobs are not to be found, chemists have often been able to put their technical knowledge to good account in other, seemingly irrelevant, lines of work. Something in a museum turns up once in a while, or a straight selling job.

Many personnel placement agencies do not know of the possibilities for women trained in chemistry. One told me this morning, "Well, *naturally* chemistry is a man's field, so . . ." That person's mind is shut tight at the very start! I could not have converted her without reading this whole paper to her, and perhaps not then.

The Employment Bureau of The Chemists' Club (New York) has

on file the records of one hundred and four women chemists who range from non-graduates to those with doctor's degrees, with women of all ages in each group. Undoubtedly there are positions where many of these worthy chemists could find expression for their talents, and the fine work of this Bureau should be better known to those outside of chemical circles who might well take advantage of it.

At our Annual Meeting last year, Dr. Crossley suggested that THE AMERICAN INSTITUTE OF CHEMISTS should do something about the vocational opportunities for women chemists. I hope that the very lack of available facts, brought out by this informal study, has shown that such a survey is worthy of consideration by THE AMERICAN INSTITUTE OF CHEMISTS, as the organization devoted to the professional activities and human welfare of chemists. We all should be alive to all the opportunities everywhere, so that, no matter where our individual preferences lie, we may be able to help into congenial positions many of these qualified professional "chemists that happen to be women".

Mrs. Jouett Shouse, Chairman of the Board of Directors of the Institute of Women's Professional Relations, in discussion said:

> Miss Wall is quite correct in stating that there are not enough statistics on opportunities for women in the field of chemistry so that those seeking information can get the necessary guidance.
>
> It is the job of the Institute of Women's Professional Relations to know the range of opportunities for women of college education, and in this and in other scientific fields neither our organization nor any other organization has collected information along these lines. Our Institute, however, does know opportunities in retailing. It does know opportunities in public service. It does know what business offers those with home economics training. It also knows the jobs available in consumer services. It does know the commercial value of a doctor's degree. It knows the advantages and disadvantages in many lines of work and the training and preparation necessary, but it, as well as the chemical societies themselves, recognize that there is a need for more specific information for women students who wish to use chemistry as a basis for life work.
>
> I, too, have been talking with placement officers in colleges and find, as did Miss Wall, that the emphasis is on the necessity of a broad basic education plus two branches of educational training. For example, in speaking to a New England director of placement, I find that she has been able to place only one out of many applicants in a chemical plant. There is not sufficient information for students as to what the industrial employers want. This should be known because no adequate counsel can be given without these pertinent facts. If business can use certain types of women, if they can not use certain types of women, there should be an analysis available as to the reasons.

It is generally accepted that industry does not want women chemists as the work done must be carried to completion from the laboratories to the plants which necessitates overalls and working oftentimes with the laborers engaged in the heavy industries. In some cases this has been done but whether the women themselves are not prepared to do this or whether the men do not want them is a question with unevaluated answers.

There is also the idea about that the young students today are not willing to take time for the training which leads to administrative jobs. Also, there is the emphasis that the schools are looking for teachers who not only have the educational requirements but have a cultural background. Perhaps too little emphasis is being given in our cultural colleges to developing this cultural background which is a vocational requirement. Our colleges have been so afraid that they would be termed *vocational* when they wished to be cultural and it is a sad commentary that business finds in many cases that the graduates of our colleges throughout the country have neither pre-vocational training nor the cultural qualifications.

It is the hope of the Institute that THE AMERICAN INSTITUTE OF CHEMISTS will coöperate in making a comprehensive statistical study of the opportunities for those with scientific training.

Miss Granville Meixell, Engineering Librarian, Columbia University, and Editor of the *Technical Book Review Index*, discussed the educational and personal qualifications of technical librarians. She ably explained the functions of the so-called "Special Library" and the work of the special librarian, and indicated just wherein chemists might or might not meet the odd assemblage of requirements.

Among others who took part in the discussion were Dean Signe Hagelthorne of Adelphi College, Miss Katharine S. Doty of Barnard College, Mrs. Alice P. Sells, of Teachers' College, Dr. A. T. Frascati, F.A.I.C., of Firmenich and Co., Inc., and Dr. M. L. Crossley, past president of THE AMERICAN INSTITUTE OF CHEMISTS.

In summarizing the points raised in the discussion, the author said: The principal reason why there are not more women engaged in pure research is probably because so much work of this kind is endowed. There are relatively few research fellowships and awards in chemistry open to women on equal terms with men; at least, not so many are awarded to women. I would remind you that the medal which will be presented to Dr. Emma P. Carr of Mount Holyoke at the forthcoming meeting of the American Chemical Society was established in 1935 by our dear friend, Mr. Garvan, in generous and good-humored recompense for saying that "there are not any women chemists." It has been my observation and experience that real research in medical, biological,

pharmaceutical, and many other branches of chemistry sets no barrier of sex. Most directors of research consider brains as sexless working material, and, if they know at all what women can do, will engage a woman as readily as a man, if prospective returns seem to be equal. Accomplishment in research is logically limited only by the chemist's own knowledge and ability. But the snags come up when executives and administrators do not know what women can do and are already doing in worthwhile chemical work.

I do believe that a thorough, up-to-date study of the status of women in professional chemistry is warranted again, preferably by our INSTITUTE in coöperation with some well-equipped agency like the Institute of Women's Professional Relations, so that college officials, guidance counselors, personnel agencies, and even the chemists themselves may know what and where the best opportunities are and how the best use can be made of them.

Walter Thomas Taggart

It is with deep regret that THE AMERICAN INSTITUTE OF CHEMISTS records the death on April 9, 1938, of Walter Thomas Taggart, professor emeritus of chemistry at the University of Pennsylvania, a member of the INSTITUTE since 1925, and a councilor from 1934 to 1937.

He was born in Philadelphia, April 15, 1872, and attended the University of Pennsylvania, from which he received the Ph.D. degree in 1903. Later he studied at the Universities of Berlin and Göttingen, Germany. From 1896 until his death he was a member of the faculty of the University of Pennsylvania.

During the World War he served as chemical expert in the nitrate division of the Army Ordnance Department. He was a delegate to the International Congress of Pure and Applied Chemistry in Berlin in 1903; to the International Union of Pure and Applied Chemistry at Copenhagen in 1924, and to the Faraday Centennial in London in 1931. He assisted the late Professor Edgar Fahs Smith in translating Richter's "Inorganic Chemistry," and was former chairman of the library committee of the Franklin Institute. He was also a member of the chemical division of the National Research Council, the Electrochemical Society, the Society of Commercial Chemistry, the British Chemical Society, the Deutsche Chemische Gesellschaft, the Historical Society of Pennsylvania, and a fellow of the American Association for the Advancement of Science.

Chemist Advisory Council

THE following portion of a circular letter addressed by Dr. Walter S. Landis, President of Chemist Advisory Council, Inc. to "Fellow Members of the Chemical Profession" should receive earnest consideration from every member of THE AMERICAN INSTITUTE OF CHEMISTS:

"The experience of six years has brought to a crystallization the necessity of not only continuing the work of the emergency committee but of extending it by the formation of a permanent, national body. The facts as to the relationship of employable chemists to the industry as a whole calls for the establishment of some central organization to deal with chemists and chemical engineers of all types who are desirous of connecting with industries where their particular experience may prove most useful.

"A contact point should be established where industries desiring a chemist with special training can be brought in touch with the type of man they need. Experience shows, with startling frequency, that a man wholly desirable and with the needed experience to serve special industrial requirements misses the opportunity because neither the industry nor the man are brought in contact.

"A better knowledge on the part of industry and the colleges of the real opportunities for students will prevent the mass production of young men who have merely majored in chemistry.

"The necessity of continuing the charitable characteristics of the emergency committee has been more apparent since the recent recession so this must be continued.

"It is intended to ask the chemical industry generally to aid in the support of this organization and in view of your interest in the welfare of chemists and chemical engineers, we earnestly request you to make generous contributions which will aid us in carrying on our work of relieving distress among those unemployed in the profession and in developing our services to individual chemists and the industry, as outlined above. Check should be made payable to ROBERT T. BALDWIN, Treasurer.

"Very sincerely yours,

WALTER S. LANDIS"

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March Meeting

The one hundred and fifty-first meeting of the Council of THE AMERICAN INSTITUTE OF CHEMISTS was held at The Chemists' Club, 52 East 41st Street, New York, N. Y., on March 24, 1938.

President Maximilian Toch presided. The following officers and councilors were present: Messrs. F. G. Breyer, H. T. Clarke, M. L. Crossley, J. W. E. Harrisson, B. H. Knight, R. J. Moore, H. S. Neiman, W. T. Read, M. Toch, Gerald Wendt, Lloyd Van Doren and F. W. Zerban. Mr. M. R. Bhagwat and Miss V. F. Kimball were present.

The date of the next council meeting was set for Tuesday, April 26, 1938.

The minutes of the previous meeting were accepted.

The Treasurer's report, covering the period from February 23, 1938, to March 24, 1938, and showing cash on hand of $868.00 with liabilities of $61.07, was read and accepted.

Upon motion made and seconded, the Claridge Hotel, Atlantic City, N. J., was selected as the headquarters for the annual meeting of the INSTITUTE to be held on May 14, 1938.

Upon motion made and seconded, Dr. Toch and Mr. Neiman were appointed to serve as the committee to make arrangements for the annual meeting.

The Jury on Medal Award reported that Dr. Frederick G. Cottrell has been selected to receive the INSTITUTE medal for 1938.

The Niagara Chapter nominated the following student medalists for 1938: Charles D. Russel, Niagara University; Samuel T. Byers, Canisius College; and James J. Eberl, University of Buffalo. Upon motion made and seconded, these names were approved.

The Washington Chapter recommended that the following universities be selected for student medals: The George Washington University; The American University; University of Maryland; Howard University; The Catholic University of America; Georgetown University; The Johns Hopkins University,

and the University of Virginia. Upon motion made and seconded, these universities were approved.

The following sub-committee was appointed by the Washington Chapter to coöperate with the board of the Chemist Advisory Council: J. F. Williams, Chairman; M. Leatherman and H. P. Newton.

The following sub-committee was appointed by the Niagara Chapter to coöperate with the board of the Chemist Advisory Council: Groves H. Cartledge, Chairman; Albert L. Hall, and Maurice C. Taylor.

The Secretary read a letter from Dr. Hibben regarding the proposed survey of chemists. After discussion, and upon motion made and seconded, it was

RESOLVED, That the Department of Labor be asked to make a survey of the economic and professional status of Chemists along the lines of the survey already made for the engineering profession.

The following committee was appointed to draw up a suitable questionnaire and to correlate the data obtained: James H. Hibben, Chairman; M. R. Bhagwat, E. F. Cayo, A. R. Merz, Maurice C. Taylor, and Gerald Wendt.

A letter from Dr. Howard W. Post was read regarding possible recognition of visiting members of the Society of Chemical Industry at Niagara Falls in June, and upon motion made and seconded, the chairman of the Niagara Chapter was appointed to coöperate with the other societies in plans for their reception.

The following new members were elected:

FELLOWS

Harrouff, Earl R.
(1938), *Investigator*, Alcohol Tax Unit, U. S. Treasury Department, Kansas City, Missouri.

Hartsook, A. J.
(1938), *Assistant Professor*, Chemical Engineering, The Rice Institute, Houston, Texas.

Kwartler, Charles E.
(1938), *Assistant Instructor*, New York University, University Heights, New York, N. Y.

Satterfield, G. H.
(1938), *Professor of Biochemistry*, North Carolina State College of Agriculture and Engineering, Raleigh, N.C.

Sontag, Lothar A.
(1938), *Research Chemist*, General Plastics, Inc., North Tonawanda, N.Y.

Wernert, Ignatius J.
(1938), *Instructor*, Niagara University, Niagara Falls, N. Y.

ASSOCIATES

Ashen, Philip
(A.1938), *Chief Chemist*, Alco Manufacturing Company, Inc., 73-77 Furman Street, Brooklyn, N. Y.

Hopper, Frederick N.
(A.1938), *Chemist*, Niacet Chemical Corporation, Niagara Falls, N. Y.

Dr. Read reported for the Committee on Membership.

Dr. Harrisson reported that the Pennsylvania Chapter would award student medals this year.

After discussion of the proposed bill (H.R. 9259) to license patents after a period of three years, and upon motion made and seconded, the president was requested to inform the Hon. William I. Sirovich, House of Representatives, Washington, D. C., that the Council wished to be on record as opposed to the passage of that bill.

There being no further business, adjournment was taken.

CHAPTERS

New York

Chairman, William T. Read *Vice-chairman,* D. D. Berolzheimer

Secretary-treasurer, James W. H. Randall
52 East 41st Street
New York, N. Y.

Council Representative, Frederick W. Zerban

Niagara

Chairman, Howard W. Post *Vice-chairman,* William R. Sheridan

Secretary-treasurer, Luther M. Lauer
98 North Buffalo Street
Orchard Park, N. Y.

News Reporter to THE CHEMIST, W. A. Smith
Council Representative, Arthur W. Burwell

Washington

Honorary President, Charles E. Munroe *President,* Louis N. Markwood
Vice-President, Norris W. Matthews *Treasurer,* James B. Martin
Secretary, A. P. Bradshaw
2121 New York Avenue, Washington, D. C.

News Reporter to THE CHEMIST, James F. Couch
Council Representative, Louis N. Markwood

Pennsylvania

Chairman, Gilbert E. Seil *Vice-chairman,* Walter L. Obold

Secretary-treasurer, Maurice L. Moore
Sharpe and Dohme, Inc.
P. O. Box 1404
Philadelphia, Penna.

Council Representative, Joseph W. E. Harrisson

Dr. Maurice L. Moore, A.A.I.C., Research Chemist, Sharp & Dohme, Philadelphia, Penna., has been re-elected Grand Secretary-historian of the Alpha Epsilon Delta National Honorary Premedical Fraternity at the Fifth Biennial Convention held at Chapel Hill, N. C., March 24-26, 1938.

NORTHERN LIGHTS

***By* Howard W. Post, F.A.I.C.**

At last we have seen it—"Government Recognition of Professional Societies!" Recently, as we learn from *Canadian Chemistry and Process Industries*, the Canadian Department of National Defense felt the need of an aeronautical engineer. Forthwith, notices were sent out stating the type of man wanted, the training which he must have had and requiring that he name a "recognized institute of professional engineers" to which he belonged.

The writer of the original article went on to say that this sort of thing should be encouraged, that there has been heretofore practically no recognition of professional scientific organizations by employers and mentioned the well known fact that oftentimes these organizations are more than ignored—"cold shoulder" was the word used. In fact we ourselves might go even farther and quote the entire article, substituting for emphasis the word "United States" for "Canada," to bring out the point to this review.

No truer word was ever spoken than that this old world of ours is surfeited with organizations of all kinds, *ad infinitum*, and could probably get along quite well if about ninety per cent of them were suddenly eliminated. Nevertheless there are times and occasions when organizations serve a real purpose. An institute with high standards of membership acting as a filter between our colleges and our industries, a reducing valve so to speak, should receive the highest measure of coöperation from both government and industry, in its attempts to police its own professional streets and to preserve the standards of that profession which it represents.

Canadian Industries, Ltd., reports an increase of twenty-three and one-half per cent in volume of sales for the year 1937.

Another touch of the human in this age of machines and science has come to light. *Canadian Chemistry and Process Industries 22* 32 (1938) publishes an editorial entitled "Inventions Alone No Cure." The sum and substance of the article is that today the way out is not to be found, as it was some years ago, in some new invention or process. At least that alone will not bring us out of the slough of industrial despondency. "Solutions for problems in human relationships are more important to business than anything that science is capable of doing."

This is not an argument for the curtailment or restriction of research or invention. By all means let the inventive genius of mankind go on uncurbed both in the laboratory and in the shop. But on the other hand the relation of man to man depends on something less tangible.

In 1886, Canada turned out mineral products to the value of $2.23 per capita; in 1935, $28.33, of which fifty per cent came from the Province of Ontario.

CHEMISTS ABROAD

By James N. Taylor, F.A.I.C.

"THE Economic Welfare of the Chemist: A new American Organization" is the caption of an item published in *The Chemical Trade Journal and Chemical Engineer (London)* for March 11, 1938. "A body which has certain of the aims and objects of the British Association of Chemists, has recently been formed in New York. This is the Chemist Advisory Council, an outgrowth of the Committee on Unemployment and Relief for Chemists and Chemical Engineers. The new organization will promote the general economic and professional welfare of chemists and chemical engineers, and maintain a central registration office and an advisory bureau. Mr. W. Landis, vice-president of the American Cyanamid Company, is president of the new organization, the temporary headquarters of which are at 300 Madison Avenue, New York."

SIR ROBERT PICKARD was re-elected President of the Institute of Chemistry at its Sixtieth Annual General Meeting. The report of the Council adopted at the meeting announced that the roll of Fellows and Associates now exceeded seven thousand.

Reviewing the work of the Council, the President remarked that, notwithstanding the increasing membership, the newly-qualified Associates were becoming steadily absorbed in industry and in other branches of practice, so that less than one per cent were known to be without appointment at the present time. He proposed to ask the Council to consider the possibility of concentrating on the problem of placing highly qualified men, who, though perhaps past middle age, were still fit for senior positions.

The annual dinner of the London Section of the British Association of Chemists was held on Saturday, March fifth, at the Waldorf Hotel, London. The speeches were short and to the point. After the banquet the rest of the evening was devoted to dancing.

Dr. J. Vargas Eyre (President of the Association) in his address said he thought that the success which the Association was achieving was due to the fact that it was far more of a friendly society than most of the associations concerned with chemists. Their object was to improve the status of the individual members as chemists rather than the status of the Association as a body. The membership of the Association was growing at a time when so many scientific associations were languishing rather than growing. The membership of the Association was now about two thousand, and ninety per cent of these were actively engaged in doing things. This appealed to him personally, because there were so many associations and organizations which existed not particularly for doing things, but for the reading of papers and discussions. Personally, he felt that those of the older men in the industry who had a little time to spare and some opportunities, should do all they could to look after the young men leaving college and taking their first job.

BOOKS

ORGANIC CHEMISTRY, AN ADVANCED TREATISE. Henry Gilman, *Editor-in-Chief*, Professor of Organic Chemistry, Iowa State College, Ames, Iowa. *Assistant Editors:* Roger Adams, Homer Adkins, Hans T. Clarke, F.A.I.C., Carl S. Marvel, and Frank C. Whitmore. *Contributors, other than the editors:* C. F. H. Allen, W. E. Bachman, A. H. Blatt, M. T. Bogert, F.A.I.C., W. R. Brode, L. F. Fieser, R. C. Fuson, E. Heuser, C. D. Hurd, T. R. Johnson, T. B. Johnson, F.A.I.C., J. A. Leermakers, P. A. Levene, K. P. Link, L. Pauling, A. L. Raymond, A. Rothen, R. L. Shriner, L. Small, W. H. Strain, E. S. Wallis, and M. L. Wolfrom. John Wiley and Sons, Inc., New York, 1938. Vol. I, lvi + 858. Vol. II, lvi + 1032. 14.8 x 22.8 cm. $7.50 per volume.

"Organic chemistry is richly endowed with excellent textbooks", yet this set meets a definite "need for a general treatise of organic chemistry suitable for instruction at the graduate level." Each author contributed "a chapter dealing with a subject of particular interest to himself," but subject matter already adequately covered elsewhere has been tacitly avoided. The contents of the set "have been integrated and the accessibility of the information increased by cross references, by individual tables of contents for each chapter, and by a comprehensive subject index which is repeated in each of the two volumes." References to the literature are confined to "a relatively few selected original articles."

In the twenty-two chapters, the following subjects are presented in a readable and interesting style: alicyclic compounds and the theory of strain, theory of the structure and reactions of aromatic compounds, stereoisomerism, organometallic compounds, free radicals, unsaturation and conjugation, open-chain nitrogen compounds, molecular rearrangements, comparison of chemical reactivity, natural amino acids, the chemistry of the pyrimidines and the purines and the nucleic acids, alkaloids, the anthocyanins and the flavones, carotenoids (the polyene pigments of plants and animals), the sterols and the bile acids and related compounds, carbohydrates (three chapters), modern electronic concepts of valence, constitution and physical properties of organic compounds, rotatory dispersion, and the significance of resonance to the nature of the chemical bond and the structure of the molecules.

The set has been carefully edited and appears to be comparatively free from errors. It should make a valuable addition to any choice selection of books on organic chemistry.

ED. F. DEGERING, F.A.I.C.

THE PHYSICAL TREATISES OF PASCAL—THE EQUILIBRIUM OF LIQUIDS AND THE WEIGHT OF THE MASS OF THE AIR. By Blaise Pascal. Translated by I. H. B. and A. G. H. Spiers. 181 pages. Price $3.25.

This publication is a complete translation of Pascal's original scientific classic upon the subject matter indicated by the title, and it is particularly valuable as early reprints are extremely scarce, and hence the ordinary chemist has no opportunity of observing and appreciating the extraordinary scientific experiments made by Pascal upon

this subject which are, in fact, the basis of our present knowledge.

In addition to the translation of the original documents of Pascal relative to his experiments and conclusions, it contains several interesting letters which passed between Pascal, Perier, Chanut, Stevin, and others, in which the subject matter was discussed with considerable liberality. This publication is interesting and valuable, not only to those who are particularly interested in the foundation for our present theories and conclusions as to the equilibrium of liquids and the weight of the mass of the air, but it is of such a character that it should be perused by those who are not quite so philosophical, as it is an inspiration to the chemist as illustrative of the valuable results which may be obtained by persistency of experimentation.

"The Science of Petroleum, A Comprehensive Treatise of the Principles and Practice of the Production and Refining of Mineral Oil, has been published recently. The chief American editor is Dr. Benjamin T. Brooks, F.A.I.C., who was assisted by Professor G. Granger Brown, Mr. F. G. Clapp, Mr. F. J. Fohs, Dr. Per K. Frolich, Dr. V. R. Gargias, Dr. J. B. Hill, and Mr. W. A. Peters. The British editors are Dr. A. E. Dunstan, Professor A. W. Nash, and Sir H. T. Tizard. There are three hundred and twenty-two contributors who are authorities on the subject of petroleum in all its aspects. This publication will be issued in four volumes, each containing about seven hundred pages and fully illustrated. The price of $85 includes the four volumes.

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U. S. Civil Service Examinations: Senior Chemist $4,600; Chemist $3,800; Associate Chemist $3,200; Assistant Chemist $2,600; and Junior Chemist $2,000.

Applications should be on file by May 2, 1938. Application forms may be obtained from Secretary, Board of U. S. Civil Service Examiners at any first class post office or from the U. S. Civil Service Commission, Washington.

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CHEMICAL ENGINEER, F.A.I.C., age 33 with ten years' experience for work in production or in the development of semi-work and full scale plants from research data in the chemical or allied processing industries. Can assume full charge of work in medium sized plants. Experience in fields of fine chemicals, utilization of wastes, and gaseous syntheses operations. Please reply to Box 42, THE CHEMIST.

ORGANIC CHEMIST, F.A.I.C., Ph.D., six years industrial experience synthesizing dyestuffs and intermediates. Laboratory, full scale and semi-plant developments. Teaching experience. Please reply to Box 44, THE CHEMIST.

Annual Meeting

May 14, 1938

Hotel Claridge, Atlantic City, N. J.

THE AMERICAN INSTITUTE OF CHEMISTS invites every member to attend the Annual Meeting. Reports from the chapters, and from committees will show the progressive work of the INSTITUTE this year, and will encourage discussion and plans for the coming fiscal year, 1938-1939. Members are invited to contribute their suggestions and advice. A program of speakers during the afternoon will give important information to every one who is interested in his professional future. At the banquet, the medal of the INSTITUTE will be presented to Dr. Frederick G. Cottrell.

Reservations for the meeting, for hotel accommodations, and for the banquet may be obtained by filling out the reservation blank attached below.

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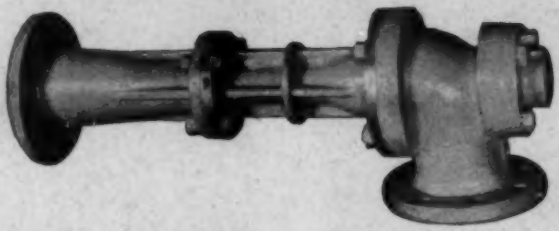

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